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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,679	01/16/2001	Macmillan M. Wisler	414-16782-US	4076

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EXAMINER
AURORA, REENA

ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 03/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/760,679	Applicant(s) WISLER ET AL.	
	Examiner Reena Aurora	Art Unit 2862	

-- Th MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method and apparatus for measuring resistivity and dielectric constant in a well core in a measurement while drilling tool or in laboratory environment.

Drawings

2. Figures 1 and 2A should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 4 is objected to because of the following informalities: insert a period "." on line 2 after the word "gas". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 8, 15, 27, 30 - 31 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. As to claims 8, 15, 27, 30 - 31 and 38, it is unclear how the core bit is coupled to the cylindrical enclosure. What is meant by the phrase "core bit operatively coupled to the cylindrical enclosure". How the cylindrical enclosure separated the material from the subterranean formation. The structure as a whole is confusing and unclear.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1 – 7, 9 – 14, 16 – 26, 28 – 29, 32 – 37 and 39 - 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinclair (4,996,489).

9. As to claims 1, 7, 27 and 34, Sinclair discloses laboratory technique for measuring complex dielectric constant of rock core samples having a cylindrical enclosure (52) for enclosing the material (50); at least one transmitter (20) having an antenna on the inside of the cylindrical enclosure for propagating electromagnetic radiation in the material at at least two frequencies; and at least one receiver (30, 32) having an antenna on the inside of the cylindrical enclosure for measuring electromagnetic radiation in the material, the measurements indicative of the parameter

of interest (Fig. 1 and Column 4, Lines 4 - 7). Sinclair fails to show the receiver measuring electromagnetic radiation at plurality of frequencies. However, it is common knowledge in the art to use plurality of transmitters and receivers to propagate or measure electromagnetic radiation at plurality of frequencies for determination of parameters like resistivity and dielectric constant to analyze the formations surrounding the well bore. Therefore, it would have been obvious for one skilled in the art, at the time of invention to modify the device of Sinclair to have plurality of transmitters and receivers to determine the resistivity at different depths of investigation.

10. As to claims 2 and 28, Sinclair discloses processing data (12) measured by receivers to measure the parameters of interest (Fig. 1).

11. As to claims 4 - 6, Sinclair discloses the core sample to be solid.

12. As to claims 3 and 29, Sinclair discloses laboratory technique for measuring complex dielectric constant of rock core samples as explained above wherein dielectric constant is one of the parameters of interest. Sinclair fails to disclose resistivity as one of the parameters of interest. However, it is well known in the art to measure attenuation between two receivers for determining the formation resistivity. Therefore, it would have been obvious for one skilled in the art, at the time of invention to modify the device of Sinclair to have determined resistivity of the formation along with the dielectric constant as a parameter of interest.

13. As to claims 9 and 32, Sinclair discloses laboratory technique for measuring complex dielectric constant of rock core samples as explained above. Sinclair fails to show the position of transmitter antenna set in a circumferential recess on the inside of

the cylindrical enclosure. The position of transmitter antenna in a circumferential recess on the inside of the cylindrical enclosure is considered a matter of engineering design selection. Mounting of transmitter antenna in a circumferential recess on the inside of the cylindrical enclosure would be in the level of ordinary skill in art since it would protect the antenna from the outside environment and from damaging.

14. As to claim 12, Sinclair discloses laboratory technique for measuring complex dielectric constant of rock core samples as explained above. Sinclair fails to show antenna set in a plurality of apertures on the inside of the cylindrical enclosure. However it is common knowledge in the art that to use apertures for propagation of electromagnetic radiation. Therefore, it would have been obvious for one skilled in the art, at the time of invention to modify the device of Sinclair to have included a plurality of apertures on the inside of the cylindrical enclosure for propagating the desired mode of electromagnetic radiation to the antenna.

15. As to claims 10, 13 and 33, Sinclair discloses laboratory technique for measuring complex dielectric constant of rock core samples as explained above. Sinclair fails to show ferrite material positioned in the recess for shielding the cylindrical enclosure from electromagnetic radiation. However it is known ferrite surfaces boost the signal by directing more of the signal outward from the antenna. Therefore, it would have been obvious for one skilled in the art, at the time of invention to modify the device of Sinclair to have included ferrite material as a shielding material such that ferrite core protects the transmitter and receiver from damage and it also increases the transmission range of the system.

16. As to claims 11 and 14, Sinclair discloses laboratory technique for measuring complex dielectric constant of rock core samples as explained above wherein epoxy potting is used for fitting elements together.

17. As to claims 15 – 26 and 35 – 41, the method claims are rejected on the same grounds as claims 1 – 14 and 27 – 34, since the method steps operate in the same functional manner as disclosed in the apparatus claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reena Aurora whose telephone number is 703-605-1372. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 703-305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

RA

Reena Aurora
March 14, 2002

EDWARD LEFKOWITZ
PRIMARY EXAMINER